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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,790	10/05/2004	Chiu-Te Lee	NAUP0474USA4	5789
27765	7590	05/16/2006	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			NGUYEN, DAO H	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,790

Applicant(s)

LEE ET AL.

Examiner

Dao H. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the communications dated 10/05/2004.
Claims 1-57 are active in this application.

Drawings

2. The drawings are objected to for the following reasons. The drawing contains several empty pages (Page 22 of 26, Page 24 of 26, and Page 26 of 26). Removal of these empty pages is required.

Specification

3. The specification has been checked to the extent necessary to determine the presence of possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejection - Double Patenting

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis

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added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 13, 6, 8, 9, 14, 17, 19, 20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-3, 5, 8, 9, 10, 15, and 16 of copending Application Publication No. 2005/0110148 (Application Serial No. 10/904,081). This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 4, 5, 7, 15, 16, 18, 25-31, 36-42, and 47-53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 6, 11, 13, 17-20, 22-27, 29, and 30 of copending Application Publication No. 2005/0110148 (Application Serial No. 10/904,081).

Although the conflicting claims are not identical, they are not patentably distinct from each other. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one of ordinary skill in the art at the time of the invention was made that the claims of the copending application recite all claimed limitations of the instant application. The claims of the instant application are merely describing the limitations of the copending application in different ways, and they are obviously anticipated by the claims of the copending applications.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claim(s) 1-5, 7-16, and 18-24 is/are rejected under 35 U. S. C. § 102 (b/e) as being anticipated by admitted prior art (Admission).**

Regarding claim 1, Admission discloses a metal layer structure, as shown in fig.

1 of the instant application, comprising:

a substrate 11;

a first dielectric layer 16 (or one layer in the stack of layers 16) on a surface of the substrate 11;

at least one first conductor 24 on the first dielectric layer 16; and

at least one second conductor 22&26 on the first dielectric layer 16, the second conductor 26 having at least one thin portion (on the one hand, second conductor layer 26 comprising thin portions, which are portions of layer 26 formed above layer 18 and not overlap vias 28, and thick portions, which are portions of layer 26 formed in and on layer 18 (that is, the thick portions of the second conductor comprise the conductor plugs 22 and portions of conductor 26 atop the plugs 22). On the other hand, conductor layer 26 itself is a thin layer comparing to layer 32, or comparing to substrate 11 (note that without giving a specific value of how thin the thin portion of the second conductor is, or without giving that to what the thin portion is compared, or merely saying that it is thin, an ordinary artisan can point out various layers which is/are thicker than the claimed thin portion).

Regarding claim 14, Admission discloses a metal layer structure, as shown in fig. 1 of the instant application, comprising:

- a substrate 11;

- a first dielectric layer 16 (or one layer in the stack of layers 16) on a surface of the substrate 11;

- at least one first conductor 24 on the first dielectric layer; and

- at least one second conductor 22&26 on the first dielectric layer;

wherein the first conductor and the second conductor have a first thickness and a second thickness, respectively, and the first thickness and the second thickness impart different functions to the first conductor and second conductor, respectively. This is

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inherent because the first conductor is a bonding pad, while the second conductor is a fuse.

Regarding claim 2, Admission discloses the metal layer structure wherein the second conductor has at least one thick portion (portions of layer 26 formed in and on layer 18 (that is, the thick portions of the second conductor comprise the conductor plugs 22 and portions of conductor 26 atop the plugs 22)). See fig. 1.

Regarding claim 3, Admission discloses the metal layer structure wherein a thickness of the first conductor 22&24 is equal to a thickness of the thick portion 22&26. See fig. 1.

Regarding claims 4 and 15, Admission discloses the metal layer structure wherein a ratio of a thickness of the thick portion to a thickness of the thin portion is approximately 1 to 8. See fig. 1.

Regarding claims 5 and 16, Admission discloses the metal layer structure wherein a thickness of the thick portion is approximately 0.8 to 1.6 μm , and a thickness of the thin portion is smaller than 0.8 μm . See the instant specification, pages 1-4.

Regarding claims 7 and 18, Admission discloses the metal layer structure wherein the second dielectric layer is a PE-oxide layer. See the instant specification, pages 1-4.

Regarding claims 8 and 19, Admission discloses the metal layer structure wherein the surface of the substrate further comprises at least one third dielectric layer (the other layer in the stack of layers 16) and at least one metal structure 14 disposed in the third dielectric layer. See fig. 1.

Regarding claims 9 and 20, Admission discloses the metal layer structure wherein the metal structure is copper (Cu). See the instant specification, pages 1-4.

Regarding claims 10-13, and 21-24, Admission discloses the metal layer structure comprising all claimed limitations. See the instant specification, pages 1-4.

10. Claim(s) 1-57 is/are rejected under 35 U. S. C. § 102 (b) as being anticipated by U.S. Patent No. 6,175,145 to Lee et al.

Regarding claim 1, Lee discloses a metal layer structure, as shown in figs. 1-5, comprising:

a substrate (not shown, see col. 4, lines 7-9);

a first dielectric layer 1 on a surface of the substrate;

at least one first conductor (outer metal conductors 25&30) on the first

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dielectric layer 1; and

at least one second conductor (inner conductors 25, 30 and 50, fig. 4) on the first dielectric layer 1, the second conductor having at least one thin portion 50.

Regarding claim 14, Lee discloses a metal layer structure, as shown in figs. 1-5, comprising: a substrate (not shown, see col. 4, lines 7-9);

a first dielectric layer 1 on a surface of the substrate;

at least one first conductor (outer metal conductors 25&30) on the first dielectric layer 1; and

at least one second conductor (inner conductors 25, 30 and 50, fig. 4) on the first dielectric layer 1;

wherein the first conductor and the second conductor have a first thickness and a second thickness, respectively, and the first thickness and the second thickness impart different functions to the first conductor and second conductor, respectively. This is inherent because the first conductors forming contact pads wherein the second conductor forming fuse.

Regarding claim 25, Lee discloses a fuse structure, as shown in figs. 1-5, comprising:

a substrate (not shown, see col. 4, lines 7-9),

a bonding pad area (corresponding to outer metal conductors 25&30) and a fuse

area (corresponding to inner conductors 25, 30 and 50, fig. 4) being included on a surface of the substrate;

a first dielectric layer 1 on the surface of the substrate;

at least one first conductor (outer metal conductors 25&30) on the first dielectric layer 1 in the bonding pad area; and

at least one second conductor (inner conductors 25, 30 and 50, fig. 4) on the first dielectric layer in the fuse area;

wherein the first conductor having a first thickness is used as a bonding pad, and the second conductor having a second thickness (corresponding to the thickness of conductor pattern 50) smaller than the first thickness is used as a fuse. See fig. 4.

Regarding claim 36, Lee discloses a fuse structure, as shown in figs. 1-5, comprising:

a substrate (not shown, see col. 4, lines 7-9),

a fuse area (corresponding to inner conductors 25, 30 and 50, fig. 4) being included on a surface of the substrate;

a first dielectric layer 1 on the surface of the substrate;

at least one fuse (inner conductors 25, 30 and 50, fig. 4) on the first dielectric layer 1 in the fuse area, the fuse having a thin portion (middle portion 50) and a thick portion (side portions 30 & 25 & 50);

a second dielectric layer 35 on the first dielectric layer 1 that covers the thick portion; and

a first opening in the second dielectric layer exposing the thin portion (to laser beam; see col. 4, lines 58-64) .

Regarding claim 47, Lee discloses a metal layer structure, as shown in figs. 1-5, comprising:

- a substrate (not shown, see col. 4, lines 7-9);
 - a first dielectric layer 1 on a surface of the substrate;
 - at least one first conductor (outer metal conductors 25&30) on the first dielectric layer 1; and
 - at least one second conductor (inner conductors 25, 30 and 50, fig. 4) on the first dielectric layer;
- wherein the first conductor having a first thickness (comprising total thickness of layers 30 and 25) is a first material, and the second conductor having a second thickness (comprising total thickness of layers 30, 25, and 50) different from the first thickness is a second material. See col. 3, line 28 to col. 4, line 64.

Regarding claim 2, Lee discloses the metal layer structure wherein the second conductor has at least one thick portion (side portions 30 & 25 & 50). See figs. 2, 4.

Regarding claim 3, Lee discloses the metal layer structure wherein a thickness of the first conductor is equal to a thickness of the thick portion See fig. 2A.

Regarding claims 4, 15, 27, 37, and 48, Lee discloses the metal layer structure wherein a ratio of a thickness of the thick portion to a thickness of the thin portion is approximately 1 to 8. See figs. 1-5.

Regarding claims 16, 27, 38, and 49, Lee discloses the metal layer structure wherein a thickness of the thick portion is approximately 0.8 to 1.6 μm , and a thickness of the thin portion is smaller than 0.8 μm . See col. 4, lines 18-33.

Regarding claims 6, 17, 28, 39, and 50, Lee discloses the metal layer structure further comprising:

- a first opening 19 exposing the first conductor (to contact plug 20);

- a second opening exposing the thin portion (to laser beam; see col. 4, lines 58-64); and

- a second dielectric layer 35 on the first dielectric layer 1 that covers the first conductor and the second conductor. See figs. 1-5.

Regarding claims 7, 18, 29, 40, and 51, Lee discloses the metal layer structure wherein the second dielectric layer is a PE-oxide layer. See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Regarding claims 8, 20, 31, 42, and 53, Lee discloses the metal layer structure wherein the surface of the substrate further comprises at least one third or fourth

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dielectric layer and at least one metal 10, 20 structure disposed in the third or fourth dielectric layer 15. See fig. 4.

Regarding claim 9, Lee discloses the metal layer structure wherein the metal structure is copper (Cu). See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Regarding claims 10, 21, 32, 43, and 54, Lee discloses the metal layer structure wherein the third dielectric layer is a low-k dielectric layer. See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Regarding claims 11, 22, 33, 44, and 55, Lee discloses the metal layer structure wherein the metal structure is copper, and the third dielectric layer is a low-k dielectric layer. See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Regarding claims 12, 23, 34, 44, and 55, Lee discloses the metal layer structure wherein a dielectric constant of the low-k dielectric layer is approximately 2.0 to 3.5. See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Regarding claims 13, 24, 35, 46, and 57, Lee discloses the metal layer structure wherein the low-k dielectric layer comprises a carbon-contained oxide layer or an

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inorganic dielectric material layer. See col. 1, line 42 to col. 2, line 19; col. 3, line 28 to col. 4, line 64.

Conclusion

11. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (571)272-1791. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax numbers for all communication(s) is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1625.

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A handwritten signature in black ink, appearing to read 'Dao H. Nguyen', written over two horizontal lines.

Dao H. Nguyen
Art Unit 2818
May 15, 2006

Andy Huynh
ANDY HUYNH
PRIMARY EXAMINER